DOCUMENT RESUME

ED 293 267 EC 202 466

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TITLE	School Effectiveness: Implications for Effective Instruction of Handicapped Students. Monograph No. 3. Instructional Alternatives Project.
INSTITUTION	Minnesota Univ., Minneapolis.
SPONS AGENCY	Office of Special Education and Rehabilitative Services (ED), Washington, DC.
PUB DATE	May 87
GRANT	G008430054
NOTE	38p.; For related documents, see EC 202 465-468.
PUB TYPE	Information Analyses (070)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Administrator Role; Basic Skills; Classroom Environment; Curriculum Development; *Disabilities; Educational Methods; *Educational Quality; Elementary Secondary Education; Expectation; *Instructional Effectiveness; Learning Theories; Principals; *School Effectiveness; Student Characteristics; Time Factors (Learning)
IDENTIFIERS	*Effective Schools Research; School Improvement Projects

ABSTRACT

The monograph summarizes findings of effective schools research, information on the characteristics of effective classrooms, and descriptions of the methodological and conceptual issues related to school improvement projects. The impact of the school effectiveness literature on classroom instruction is discussed, and implications for the instruction of handicapped students are addressed. The summary of research findings includes sections on reviews of school effectiveness, comparative and case studies, and program evaluation. Generalizations from the research include the importance of: the principal's leadership, high expectations for student achievement, emphasis on basic skills, and frequent monitoring of student progress. Characteristics of effective classrooms are described in terms of curriculum alignment, attention to student characteristics, use of instructional time, student success rate, and quality instruction. A model of classroom effectiveness relating specific teacher and student behaviors is summarized. Finally the impact of the school effectiveness literature is reviewed. It is noted that while the focus of the effective schools movement has been in regular education, effective school characteristics apply equally to special education practice. Fifty-seven references are appended. (Author/DB)

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University of Minnesota

MONOGRAPH NO. 3

SCHOOL EFFECTIVENESS: IMPLICATIONS FOR EFFECTIVE INSTRUCTION OF HANDICAPPED STUDENTS

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INSTRUCTIONAL ALTERNATIVES PROJECT

May, 1987

EC 203466

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Abstract

This monograph is a summary of findings from effective schools research, information on the characteristics of effective classrooms, and descriptions of the methodological and conceptual issues related to school improvement projects. The impact of the school effectiveness literature on classroom instruction and the kind of instruction received by an individual student is discussed. Implications for handicapped students' instruction are addressed.

This project was supported by Grant No. G008430054 from the U.S. Department of Education, Office of Special Education and Rehabilitative Services (OSERS). Points of view or opinions do not necessarily represent official position of OSERS.

School Effectiveness: Implications for Effective Instruction of Handicapped Students

The Instructional Alternatives Project is a series of investigations aimed at assessing the effectiveness of alternative methodologies for increasing academic engaged time and academic outcomes for mildly handicapped students. The purpose of this monograph is to summarize what literature reviews and selected studies on effective schools have to say, or suggest, about effective instruction for handicapped students. The school effectiveness area is just one of many that provides a basis for characterizing the qualitative nature of instruction for handicapped students.

For the past decade, educational psychologists have paid considerable attention to the relationship between time and school learning. Building on the seminal work of Carroll (1963) and subsequent work by Bloom (1974), Harnischfeger and Wiley (1976) and Wiley and Harnischfeger (1974), researchers have conducted major investigations of the relationship between opportunity to learn (variously called academic engaged time, academic learning time, academic responding time, or time on task) and instructional outcomes. Now, in the past few years, the need to go beyond quantitative measures of engaged time to investigate what students do during engaged time (i.e., the qualitative nature of instruction), increasingly is recognized. Ours is one such effort.

Several comprehensive reviews of time research findings and issues have been written (Anderson, 1984; Graden, Thurlow, & Ysseldyke, 1982; Karweit, 1983). In general, researchers have demonstrated: (a) school and teacher differences in time allocated to instruction exist; when aggregated over the school year, large differences between schools and classrooms in opportunity to learn in various curriculum areas result; (b) students spend a relatively small

percentage of the school day actively engaged in academics; (c) the percentage of time engaged varies considerably across classrooms and across individual students within classrooms, resulting in large differences between students in time actively involved in learning; (d) engaged time rates depend on a variety of organizational factors (classroom management, class size, interruptions), content area, and the point in time during the instructional period; and (e) engaged time is consistently though moderately related to student achievement. In addition to the tremendous variation in use of classroom time, data suggest that additional time used to make up for ineffective instruction is negatively correlated with achievement (Frederick & Walberg, 1980; Karweit, 1983).

Time-based research is criticized on several accounts. First, it is said that attention is drawn away from the quality of learning and to the quantity of time spent learning. Confrey (1981) argues that what occurs during a time period, not simply accumulation of time, is most critical for student learning. Thus, assignment of "busywork" can result in high time on task rates for students without concomitant increases in learning. Karweit (1983) criticizes time research because: (1) time appears to be at most a moderate predictor of achievement, (2) teacher, student, and classroom variation in engaged time may not be as easily altered as suggested by Bloom (1980), and (3) large increases in instructional time may be required for reasonably small changes in achievement. In her review and re-analysis of studies of engaged time and achievement, she concluded that there is a consistent, but low, positive correlation ($r = .09$ to $.43$) between the two when initial ability is controlled. Thus, time and other variables share substantial common variance.

In general, time-based studies of school learning result in the overall

conclusion that time is one factor, but not the sole factor, producing or limiting student achievement. Simply stated, increased time is a necessary but not sufficient condition for improving student achievement. Several researchers echo the need to investigate other factors. Consider the following:

> The value of future classroom research will improve if more attention is placed upon the quality of instruction and if research becomes more integrative, examining the teacher, students, and particular curriculum tasks in specific contexts. (Good, 1983, p. 129).

> Clearly it is the quality more than the quantity of schooling which best serves as an educational and research focus. Quality of schooling includes not only time on task, but time well spent. It also includes, however, time spent on teaching practices such as encouragement, corrective feedback with guidance, small group discussions, individualization, and students involvement in their own education; but not idle praise, corrective feedback without guidance, rambling verbal interactions, busywork as a controlled device, or token student making. (Sirotnik, 1983, p. 26)

> We need to move beyond the now well established relation between time on task/student engagement/teacher management skills and student learning...at this point we no longer need to replicate these findings; instead we need to go beyond them in order to observe other relations. (Brophy, 1979, p. 749)

Important aspects of the qualitative nature of instruction are classroom, administrative, and school system variables that promote instructional effectiveness in schools.

The qualitative nature of instruction has not received the attention for handicapped students that it has for nonhandicapped students. Since a primary goal of the Instructional Alternatives Project is to document the qualitative nature of instruction for handicapped students, a necessary first step was to review the relevant literature, literature that might directly address the issues related to instruction for handicapped students, or that at least would provide insights that might be relevant to students in the special education population.

In this endeavor, seven general areas of literature were identified. They are as follows:

Effective Schools
Effective Instruction
Teacher Effectiveness
Teacher Decision Making
Student Cognitions
Instructional Psychology
Models of School Learning

The first area is summarized in this monograph. Other areas are summarized in other monographs. In each literature review, we identified those factors that individuals say are important or that research has documented empirically to be related to positive academic outcomes. Based upon these literature reviews, over 100 factors were generated. These factors, organized into environmental, instructional, and student characteristics, were studied and the decision was made to focus on an analysis and description of instructional factors for assessing the qualitative nature of instruction. The procedure used to develop a scale for this purpose is described in Monograph No. 1 (Ysseldyke, Christenson, McVicar, Bakewell, & Thurlow, 1986).

In this monograph, literature reviews and selected studies are summarized from the effective schools literature. The monograph concludes with a summary of the contributions the literature makes toward characterizing the nature of instruction and toward identifying important variables for promoting positive student learning outcomes.

Overview

The goal of the effective schools movement is to improve instruction, and subsequently achievement, for all students. The literature on effective schools contains discussions of classroom, administrative, and school system variables

that promote instructional effectiveness in schools. While these factors are not always under direct control of an individual teacher, we believe they influence the way instruction is delivered for an individual student. These variables operate at different levels, ranging from those that are idiosyncratic to the student, to those that are district level, system-wide factors.

At the classroom level, degree of classroom organization, attention to student characteristics, and the level of teacher expectation for student performance serve as examples of factors that influence delivery and management of instruction for an individual student in settings with groups of students. Administrative leadership, as reflected in the role of the principal, represents another level that influences a student's instructional experience. The leadership offered by the principal can affect the orderliness of the school climate as well as the academic focus present in the classroom. Finally, the commitment of the entire school district to creating instructionally effective environments filters down to the individual student. The academic emphasis in a school district is reflected by such things as establishment of curriculum objectives, access to appropriate teaching materials and resources, and monitoring of student progress.

In compiling this review, several types of publications were read. Major emphasis was given to descriptions of effective schools, comparisons of effective and ineffective schools, and examination of effectiveness-oriented programs. In addition, a number of reviews of the school effectiveness literature were read. The interested reader is referred to reviews by Good and Brophy, 1986, Squires, Huitt, and Segars (1983), Purkey and Smith (1983), Edmonds (1982), and Edmonds and Frederiksen (1979) for a more comprehensive

background than is provided in this monograph. This monograph is organized into three parts: (a) a summary of research findings, (b) a review of characteristics of effective classrooms, and (c) the impact of the school effectiveness literature on understanding the kind of instruction received by an individual student.

Summary of Research Findings

The effective schools movement can be traced to a line of research that sought to dispell the notion that differences among schools do not make a difference in the achievement of poor and minority children. The early work of Weber (1971) and the conclusions from four school effectiveness studies (Brookover & Lezotte, 1979; Edmonds & Frederiksen, 1979; Phi Delta Kappa, 1980; Rutter, Maughan, Mortimore, Ouston, & Smith, 1979) underlie most school improvement efforts. Effective schools must be able to demonstrate both quality and equity in learning outcomes for students. Major conclusions from these studies indicate that in effective schools, students master essential curricula, and middle socioeconomic students do not vary significantly in their achievement levels on standardized achievement tests from lower socioeconomic students. Recently, instructional improvement has focused on the findings from the Study of Schooling (Goodlad, 1984) and the recommendations from the National Commission on Excellence in Education (1983).

Westbrook (1982) organized the school effectiveness literature into (a) reviews of school effectiveness, (b) case studies (descriptions of effective schools) and comparative studies (comparisons of effective and ineffective schools), and (c) program evaluation (examination of effectiveness-oriented programs). His framework is used in this review of research findings.

Reviews of School Effectiveness

There are many reviews of the school effectiveness literature (e.g., Clark, Lotto, & McCarthy, 1980; Edmonds, 1982; Hersh, Carnine, Gall, Stockard, Carmack, & Gannon, 1981; Mackenzie, 1983; Purkey & Smith, 1983; Rutter, 1983; Squires et al., 1983). While each review produces a somewhat different list of characteristics of "effective" schools, Edmonds' reviews (Edmonds, 1982; Edmonds & Frederiksen, 1979) have received primary attention. From a review of 38 studies, reviews, and articles about school effectiveness, he listed five ingredients in an effective school: strong administrative leadership; high expectations for student achievement; an orderly, safe climate conducive to learning; an emphasis on basic-skill acquisition (academic focus); and frequent monitoring of student progress.

Characteristics of effective schools that have been documented or proposed by various individuals are listed in Table 1. While these lists vary considerably in detail, features such as leadership, orderly school climate, high expectations, academic focus, and monitoring of instructional progress are common, essential elements. Three broad themes about school climate have emerged from effective schools research: academic emphasis, orderly environment, and expectations for success (Squires et al., 1983).

Comparative and Case Studies

Sometimes researchers gather information about effective schools by statistical comparisons of schools considered effective and schools considered ineffective. Sometimes they conduct case studies of effective and/or ineffective schools.

Schools that are positive outliers (statistically highly effective schools) and negative outliers (unusually ineffective schools) have been identified

Table 1

Characteristics of "Effective" Schools

Brookover and Lezotte (1979)	Edmonds (1981)	Phi Delta Kappa (1980)	Rutter and Others (1979)
•Improving schools accept and emphasize the importance of basic skills mastery as prime goals and objectives	•Clarity that pupil acquisition of the basic skills takes precedence over all other school activities	•Successful schools are characterized by clearly stated curricular goals and objectives	•Outcomes were better in schools where teachers expected the children to achieve well
•Staff of improving schools believes all students can master the basic skills objectives and they believe the principal shares this belief	•There is a climate of expectation in which no children are permitted to fall below minimum but efficacious levels of achievement	•The leaders' attitudes toward urban education and expectations for school or program success determine the impact of the leader on exceptional schools	•Outcomes were better in schools that provided pleasant working conditions for the pupils
•Staff of improving schools expect their students will go on with their education	•Administrative leadership is strong and without it the disparate elements of good schooling can be neither brought together nor kept together	•The behavior of the designated school or program leader is crucial in determining school success	•Outcomes were better in schools where immediate, direct praise and approval were the prevalent means of classroom feedback
•Staff of improving schools do not make excuses: they assume responsibility for teaching basic skills and are committed to do so	•A means is present by which pupil progress can be frequently monitored	•Succesful urban schools frequently employ techniques of individualized instruction	•Outcomes were better in schools where teachers presented themselves as positive role models demonstrating punctualit concern for the physical well-being of the pupils, and restraint in the use of physical punishment
•Staff of improving schools spend more time on achieving basic skills objectives	•There is an atmosphere that is orderly without being rigid, quiet without being oppressive, and generally conducive to the instructional business at hand	•Structured learning environments are particularly successful in urban classrooms	•Children's behavior was better in schools where teachers were readily available to be consulted by children about problems and where many children consulted with teachers
•Principals at improving schools are assertive instructional leaders and disciplinarians, and they assume responsibility for the evaluation of the achievement of basic skills objectives		•Reduction in adult/child ratios are associated with positive school performance	•Outcomes were better in schools where a high proportion of children held some kind of position of responsibility in the school system
•Staff at improving schools accept the concept of accountability and are involved in developing (or using) accountability models		•Successful schools are often supported with special project funds from federal, state, and local sources	•A school's atmosphere is influenced positively by the degree to which it functions as a coherent whole, with agreed ways of doing things that are consistent throughout the school and that have the general support of all staff
•Teachers at improving schools are not very satisfied or complacent about the status quo		•Successful urban schools are characterized by high levels of parental contact with the school and parental involvement with school activities	
•There is more parent-initiated contact and involvement at improving schools (even though the overall amount of parent involvement is less)		•Successful schools frequently use staff development or inservice training programs to realize their objectives	
•The compensatory education programs in improving schools de-emphasize paraprofessional involvement and teacher involvement in the selection of Comp-Ed-bound students		•The greater the specificity or focus of the training program in terms of goals or processes, the greater the likelihood of its success	
		•Resource and facility manipulations alone are insufficient to affect school outcomes	

Note: From "Each effective school may be one of a kind" by J. D'Amico, 1982, Educational Leadership, 40, p. 62.

through regression analysis of school mean achievement scores, controlling for SES factors. Characteristics of these two types of schools are assessed through surveys, interviews, and case study approaches. Both comparative and case studies have contributed substantially to the identification of the characteristics of effective schools (including those summarized in Table 1).

Westbrook (1982) summarized six case studies that examined exemplary inner city schools. Four of the studies appear in Table 2. The remaining two (Edmonds, and Rutter et al.) were previously described by D'Amico (1982) and listed in Table 1. These schools have many characteristics in common, including the principal as an instructional leader, high teacher expectations for all students, increased instructional time, effective classroom management and discipline, teacher-directed instruction, parent-teacher contact and collaboration, and teacher emphasis on establishing student accountability.

A comment about Weber's (1971) findings, which appear in Table 2, is warranted since this is considered a pioneering study. Cited by Westbrook (1982), Weber found that quality of teaching was unrelated to reading achievement gains for elementary students in four schools in three cities. Purkey and Smith (1983) caution that many of the study's findings are difficult to interpret because there was no comparison group of less effective schools and vague definitions were used for characteristics such as "quality of teaching." Westbrook reports only those characteristics not found to be part of an effective reading program in the Weber study. Purkey and Smith (1983) cite additional personnel and degree of individualization as two characteristics of effective reading programs in addition to those identified by Edmonds.

In a longitudinal study of 12 inner-city secondary schools in London, Rutter et al. (1979) measured school outcomes in terms of students' in-school

Table 2

School Effectiveness Research: Case Study Findings

Author(s) Title	Definition/Criteria	Sample	Findings
Brookover, W. B. Beady, C. Flood, P. Schweitzen, J. Wisenbaker, J. (1979) School social systems and student achievement: Schools can make a difference	High achieving school was determined on the basis of whether the school scored above the sample mean for the white/black racial group.	91 Michigan elementary schools randomly selected from all Michigan elementary schools in correlational study; 4 elementary schools in case study. Schools were paired by race, socioeconomic status, and urban location. Each pair consisted of a high and low achieving school.	Study found social system to explain 85% of variance between groups in reading and math achievement. Case study found the following common characteristics of high achieving schools: (1) principals emphasize achievement and teacher performance; perform administrative and instructional leadership roles; (2) immediate, appropriate and clear feedback on appropriate behavior in classroom; (3) differentiation of programs; (4) teachers had high expectations for student achievement (above grade level or growth of at least a year); (5) use of competitive team games; (6) teachers accepted responsibility for student achievement; (7) greater time in instruction and interaction between students and teachers.
Brookover, W. B. Lezotte, L. (1977) Changes in school characteristics coincident with changes in student achievement	Improving School or Effective School -- increase of at least 5% in percentage of students attaining 75% or more of tested objectives and a decrease of 5% or more in student attaining 25% or less of tested objectives during 1974-76.	8 Michigan elementary schools (6 "improving" schools and 2 "declining" schools).	Improving schools differed from declining schools in terms of: (1) emphasizing accomplishment of basic reading and mathematics objectives; (2) expressing belief that all students could master basic skills objectives; (3) higher expectations for students' educational accomplishments; (4) assuming responsibility for teaching basic skills; (5) spending more time in reading instruction; (6) principal who is instructional leader, assertive, disciplinarian and responsible for basic skill achievement; (7) more accepting of concept of teacher accountability; (8) higher levels of parent-initiated contact but less overall parent involvement; (9) involving teachers in identification/teaching of compensatory education classes.
Coleman, J. Campbell, E. Hobson, C. McPartland, J. Mood, A. Weinfeld, F. York, R. (1966) Equality of Educational Opportunity (The Coleman Report)	None stated	"School Survey Tests" were administered to sampling of metropolitan and nonmetropolitan 1st, 3rd, 6th, 9th, and 12th grade students across the nation. Care was given to involving proportional numbers of blacks and whites. Surveys were developed by Educational Testing Service. Teacher, principal and superintendent questionnaires were used to collect additional data. Total number of surveys used in data analysis was approximately 570,000. Approximately 70,000 questionnaires were collected.	Coleman's report generally found that much of the difference in achievement outcomes across schools could be explained by the social status and/or racial composition of the school student body. It found the following in relation to student achievement: (1) when socioeconomic background is controlled, differences between schools account for only "small fraction of differences in pupil achievement"; (2) the average minority student's achievement might suffer more in a school of low quality than would "white student's achievement"; (3) student achievement is strongly related to the educational backgrounds and aspirations of other students.
Weber, G. (1971) "Inner City Children Can Be Taught To Read: Four Successful Schools"	Defined effective schools in terms of: (1) Strong principal or strong district leadership; (2) High expectations for student achievement; (3) Relatively quiet, orderly, purposeful atmosphere of school; (4) Low student-teacher ratio and additional reading to personnel to increase reading "expertise" during reading instruction time; (5) Phonics in reading curriculum.	4 public elementary schools (1 in Los Angeles, 1 in Kansas and 2 in New York).	Characteristics not found to be part of effective reading program included: (1) small class size; (2) achievement ability grouping; (3) quality of teaching; (4) ethnic background of instructional staff; (5) professional educational status; and (6) outstanding physical facilities.

Note: From Considering the research: What makes an effective school? (pp. 4-6) by J. D. Westbrook, 1982, Austin, TX: Southwest Educational Development Laboratory.

behavior, attendance, examination success, and delinquency. Differences between schools on these four variables were systematically related to the characteristics of schools as "social institutions." The authors argue that specific processes in effective schools created an "ethos" (i.e., school climate) leading to better outcomes. The relationship between school processes and measures of a positive "ethos" are presented in Table 3. While students with a similar background were studied, it is critical to note that more effective schools had a larger percentage of middle-income students than did the less effective schools, suggesting that school composition rather than school process could be the critical factor.

Program Evaluation

Individual opinions about effective schools, what research says about effective schools, and reported practices of other effective schools have been used in school improvement efforts. Lezotte and Bancroft (1985) note that in addition to the list of large, urban schools described by Edmonds (1982) as school improvement sites, 35 states have adopted a major instructional improvement program.

The efforts of schools in increasing student achievement are illustrated in three instructional improvement programs. A school-based staff development project that directly taught the characteristics of effective schools and facilitated change in schools through staff collaboration and participation was implemented in 10 Kentucky schools (Miller, Cohen, & Sayre, 1985). Two patterns emerged from the analysis of the project's data. While the entire district improved slightly in total reading and total math achievement as measured on standardized achievement tests, gains for project schools were substantially

Table 3

Measures and School Processes Associated with School Outcomes in Rutter's Study

School Processes	Measures
Academic Emphasis	Homework was frequently assigned by teachers
	Administrators checked that teachers assigned homework
	Teachers expected students to pass national exams
	Proportion of school week devoted to teaching
	Proportion of students reporting library use
	Course planning done by groups of teachers
Skills of Teachers	Experienced teachers had higher proportion of time spent on task
	Inexperienced teachers in above average schools developed classroom management skills more easily and quickly
Teachers Actions in Lessons	Teachers spent more time on lesson topic
	Teachers spent less time with equipment, discipline and handing out papers
	Teachers interacted with class as a whole
	Teachers provided time for periods of quiet work
	Teachers ended lessons on time
Rewards and Punishments	
Punishment	Generally recognized and accepted standards of discipline uniformly enforced by teachers
Rewards	Teachers praised work in class
	Public praise of pupils in meetings
	Display of work on walls
Pupil Conditions	Access to telephone, provisions of hot drinks, etc.
	Care and decoration of classroom
	Provision of school outings
	Students approach staff member about a personal problem
	Teachers would see students at any time
Responsibility and Participation	Proportion of students holding leadership positions
	Student participation in assemblies
	Students participated in charity organized by school
	Students brought books and pencils to class
Staff Organization	Teachers planned courses jointly
	Teachers said they had adequate clerical help
	Administration checked to see that teachers gave homework
	Administration aware of staff punctuality
	Teachers felt their views were represented in decision making

Note: From "Characteristics of effective schools: The importance of school processes" by D. A. Squires, 1980, Research for Better Schools, p. 16.

higher. The project schools' reading gain was about five and a half times that of control schools; in math their gain was slightly more than four times as much as the control schools. Second, in one year the students in the 10 project schools had caught up and slightly surpassed the math achievement of students in the other elementary schools in the district. The authors concluded that the strength of the effective schools model lies primarily in the participatory mode of implementation. Since no two schools are likely to address issues in the same way, staff collaboration in achieving the common goal of increased student achievement is necessary.

The implementation of the Chicago Mastery Learning Reading Program in three urban school districts (New York, Chicago, Los Angeles) was examined by Levine and Stark (1982). As measured by the California Reading Achievement Test, across a three-year period, the percentage of elementary students scoring two years or more below grade level decreased (e.g., from 20 to 11), while the percentage of students at or above grade level increased (e.g., from 30 to 40). Gains in students' reading achievement were attributed to instructional and organizational arrangements and processes. In addition to the characteristics on Edmond's list, the authors underscore the importance of (a) coordination of curriculum, instruction, and testing; (b) emphasis on higher-order cognitive skills such as reading comprehension and problem solving in math; (c) "assured availability" of materials and resources necessary for teaching; (d) improvement in the quality of homework assignments and parental involvement; and (e) instructional planning that emphasizes grade-level decision making by teachers (i.e., staff collaboration).

Project RISE in the Milwaukee school district was one of the most extensive school improvement projects (McCormack-Larkin, 1985). Since 1979, 18 low

achieving elementary schools have participated in Project RISE, an attempt to raise reading, math, and language achievement by systematically implementing the essential elements of effective schooling described in Table 4. After four years of implementation, the Project RISE schools' achievement was at the level of city-wide norms. While achievement levels increased significantly in all of the schools, several demonstrated an exceptional rate of gains and high levels of achievement, particularly in reading and math. The success of these schools was attributed to their changes in four categories: staff attitudes, school management and organization, school practices and policies, and classroom practices. Specifically, the staff expressed the belief that all of their students could achieve regardless of SES or past academic performance, principals altered their role to include active instructional leadership, acquisition of basic skills was emphasized, and teachers used grade-level objectives and minimum standards of performance when instructing students. Within the classroom, large group instruction was supplemented with small-group instruction for the purposes of correction or enrichment. Instructional lessons were highly structured, including the specific use of the instructional routines listed in Table 4. Consistent with the two other school-based programs, this project began with shared goals, used the school effectiveness correlates as a framework for developing plans, and systematically implemented these plans. These programs illustrate a repetitive theme in the effective schools literature: school improvement can occur under less than ideal conditions.

Purkey and Smith (1983) cite the findings of six evaluations of educational programs implemented over the past 15 years. Two are relevant for teaching low-achieving students, particularly in the mainstream classroom. Examining six

Table 4

The Essential Elements of Effective Schools

School Climate

1. Strong sense of academic mission
2. High expectations conveyed to all students
3. Strong sense of student identification/affiliation
4. High level of professional collegiality among staff
5. Ongoing recognition of personal/academic excellence

Curriculum

1. Grade-level expectations and standards in reading, math, and language
2. Planning and monitoring for full content coverage

Instruction

1. Efficient classroom management through structured learning environment
2. Academic priority evidenced in increased amount of allocated time
3. Key instructional behaviors (review and homework check, developmental lesson, process/product check, actively monitored seatwork, related homework assignment)
4. Direct instruction as the main pedagogical approach
5. Maximizing academic engaged time (time-on-task)
6. Use of the accelerated learning approach (planning for more than one year's growth)
7. Reading, math, and language instruction beginning at the kindergarten level

Coordination of Supportive Services

1. Instructional approach, curriculum content, and materials of supplementary instructional services coordinated with the classroom program
2. Pullout approach used only if it does not fragment the classroom instructional program, does not result in lower expectations for some students, and does not interfere with efforts to maximize the use of time

Evaluation

1. Frequent assessment of student progress on a routine basis
2. Precise and informative report card with emphasis on acquisition of basic school skills
3. Serious attitude toward test-taking as an affirmation of individual accomplishment
4. Test-taking preparation and skills

Parent and Community Support

1. Regular and consistent communication with parents
2. Clearly defined homework policy that is explained to students and parents
3. Emphasis on the importance of regular school attendance
4. Clear communication to parents regarding the school's expectations related to behavioral standards
5. Increasing awareness of community services available to reinforce and and extend student learning

Note: From "Ingredients of a successful school effectiveness project" by M. McCormack-Larkin, 1985, Educational Leadership, 42(6), p. 32.

schools with unusually effective reading programs, Trisman, Waller, and Wilder (1976) hypothesized that curriculum, teacher training, class size, and teacher characteristic effects would explain the effectiveness of certain programs. However, they found strong instructional leadership, high expectations for student achievement, good school atmosphere (i.e., climate, ethos), a clear focus on basic skills, small-group instruction, and evidence of interchange of ideas among staff characterized the effective schools. Thus, instructional variables make a difference in student reading achievement. The results of a Title I evaluation comparing the effectiveness of "school-wide" programs with "pull-out" programs resulted in greater achievement for the school-wide approach (Doss & Holley, 1982). This approach required staff to collaborate in developing instructional programs for low-achieving students. The authors attributed the success of school-wide Title I projects to the change in the way classrooms, and by extension, entire schools treat low achieving students.

Generalizations from Effective Schools Research

Our reading of the school effectiveness literature suggests that a combination of variables influence the extent to which instruction is delivered effectively for an individual student. First, the principal's leadership provides for on-going teacher inservice training and opportunities for staff collaboration, and facilitates shared goals among school staff, supportive services with regular education, and communication with parents and appropriate community personnel. Second, there are high expectations for student achievement for all students. High expectations are reflected in the teacher's personal responsibility for student learning outcomes and instructional planning for full content coverage. Third, an orderly, safe climate conducive to student

learning is reflected in rules for appropriate behavior that are reinforced by all school personnel, efficient classroom management through structured learning, goal-focused teaching activities, and effective use of instructional time to maximize academic engaged time. Fourth, there is an emphasis on basic skill acquisition as reflected in high allocated times for academics and in teacher use of instructional procedures (e.g., clear lesson explanation, active monitoring of seatwork, reviewing and checking homework). Fifth, there is frequent monitoring of student progress. This involves assigning learning tasks at appropriate levels of difficulty, and is achieved through continuous diagnosis, evaluation, and feedback so that a student does not fall below a minimum level of performance. The notion of equity in the effective schools movement underscores the importance of equal opportunity for all students, including minority and handicapped students, to respond, to learn, and to achieve at a minimum standard of performance.

Effective Classrooms

A review of effective schools would not be complete without discussion of the characteristics of effective classrooms. Several individuals (Huitt & Segars, 1980; Mackenzie, 1983; Squires et al., 1983) include a focus on classrooms. Mackenzie poignantly notes that "ultimately, here is where the learning takes place by which we will judge a school's effectiveness" (p. 9). MacKenzie identified 31 elements and categorized these according to three essential dimensions of schooling: leadership, efficacy, and efficiency (see Table 5). District, school, and classroom elements are directed at improving student performance in the classroom. Thus, the leadership dimension includes elements aimed toward creating a positive climate and overall school atmosphere,

Table 5

Dimensions of Effective Schooling

LEADERSHIP DIMENSIONS:

Core Elements
Positive climate and overall atmosphere
Goal-focused activities toward clear, attainable and relevant objectives
Teacher-directed classroom management and decision making
In-service staff training for effective teaching

Facilitating Elements
Shared consensus on values and goals
Long-range planning and coordination
Stability and continuity of key staff
District-level support for school improvement

EFFICACY DIMENSIONS:

Core Elements
High and positive achievement expectations with a constant press for excellence
Visible rewards for academic excellence and growth
Cooperative activity and group interaction in the classroom
Total staff involvement with school improvement
Autonomy and flexibility to implement adaptive practices
Appropiate levels of difficulty for learning tasks
Teacher empathy, rapport and personal interaction with students

Facilitating Elements
Emphasis on homework and study
Positive accountability and acceptance of responsibility for learning outcomes
Strategies to avoid nonpromotion of students
Deemphasis on strict ability grouping; interaction with more accomplished peers

EFFICIENCY DIMENSIONS:

Core Elements
Effective use of instructional time; amount and intensity of engagement in school learning
Orderly and disciplined school and classroom environments
Continuous diagnosis, evaluation and feedback
Well-structured classroom activities
Instruction guided by content coverage
Schoolwide emphasis on basic and higher order skills

Facilitating Elements
Opportunities for individualized work
Number and variety of opportunities to learn

Note: From "Research for school improvement: An appraisal of some recent trends" by D. E. Mackenzie, 1983, Educational Researcher, 12, p. 8.

such as inservice training, teacher decision making, stability of staff, and long-range planning and coordination. The efficacy dimension includes elements that promote academic productivity, such as high expectations for all students, recognition for academic excellence, positive teacher-student personal interactions, a system for continuously identifying appropriate skill levels of students and matching assignments to students' needs, and flexible, cooperative grouping structures. The emphasis is on adaptive practices to ensure and recognize success of all students. The last dimension, efficiency, includes elements that create efficient management of learning, such as an orderly school and classroom environment, well-structured classroom activities, sufficient time allocated to academic instruction accompanied by higher student engaged time in learning, and an active monitoring and feedback system to all students.

A list of characteristics of effective classrooms has been developed by Huitt and Segars (1980). These characteristics have been identified through integration of the findings from teacher effectiveness research, particularly from a number of large-scale, longitudinal studies (e.g., Follow Through Study, Texas Teacher Effectiveness Study, Instructional Dimension Studies, Beginning Teacher Evaluation Study). These characteristics subsequently were combined into a model of classroom effectiveness (Squires et al., 1983). These classroom characteristics and the model are described here.

Characteristics of Effective Classrooms

Classroom factors found to correlate most strongly with positive academic outcomes include curriculum alignment, attention to student characteristics, use of instructional time, student's success rate, and quality of instruction (Huitt & Segars, 1980). Positive educational outcomes have been measured in terms of improved student achievement and sometimes by changes in student attitudes.

Curriculum alignment. Curriculum alignment refers to congruence among what should be taught (objectives), what actually is taught (instruction), and what is tested (assessment). Effective classroom are those in which specific objectives, incorporating sequenced skills, are clearly defined; instructional events are determined by those objectives; and subsequent assessment is based on content covered during the instruction. The overlap between content taught and tested was found to range from as little as 4% to as much as 95%. Brady, Clonton, Sweeney, Peterson, and Poyner (1977) found greater achievement gains when there was congruence between the content covered and content tested.

Attention to student characteristics. The knowledge, skills, and attitudes a student brings to the classroom, as well as the way the student learns, are important student characteristics. Bloom (1976) concludes that 60 to 80% of variance in achievement is due to prior learning. The conclusion that more effective teaching occurs when the teacher is aware of a student's relevant prior knowledge was supported by Leinhardt (1978). Using data from the Instructional Dimensions Study, she found that prior learning accounts for 49% of reading achievement and 43% of mathematics achievement for elementary students.

Use of instructional time. With respect to the use of instructional time, Huitt and Segars (1980) conclude that "differences in allocated time suggest that some students may have more than two or three times the opportunity to learn specific academic content than do other students" (p. 9). However, this should not be interpreted as saying "more is better." There appears to be an optimal amount of time for the study of a particular skill and devoting more than this optimal amount of time leads to diminished achievement. Most research

on engaged time focuses on the whole classroom (cf. Graden et al., 1982), not on differences for individual students. Bloom argues that if schools and teachers want all students to master specific basic skills, instruction must be planned and implemented in ways to ensure that allocated time varies in relation to the time students need to learn. Gettinger's (1984a; 1984b) research on time needed to learn supports this point. However, as English (1980) has indicated, it is common practice to vary the curriculum and standardize the time rather than to standardize the curriculum and vary the time.

Student success rate. A student's success rate introduces the importance of quality in relation to instructional time. Whether referred to as academic learning time (Denham & Lieberman, 1980), academic engaged time (Rosenshine & Berliner, 1978), or as time spent in direct instruction (Rosenshine, 1979), the critical variable in teaching is the amount and intensity of student engagement or active involvement in appropriate learning tasks. While the optimal success rate may depend on the mode of instruction, student characteristics, and stage of instruction (e.g., introduction, practice), high success is generally defined at 90% correct responses on written work with only careless errors.

Quality of instruction. The fifth factor, quality of instruction, is defined in terms of the teacher's role as a decision maker, the teacher's management style, and the teacher's use of direct instruction principles. These categories are covered in Monograph No. 5 (Ysseldyke, Thurlow, & Christenson, 1987).

A Model of Classroom Effectiveness

The dimensions of classroom effectiveness, proposed by Squires and colleagues (1983), are shown in Figure 1. In their empirically-based model,

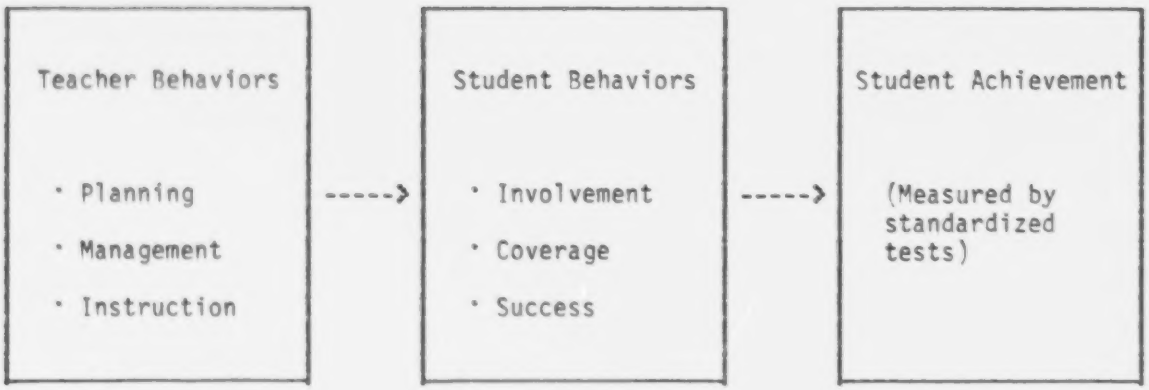
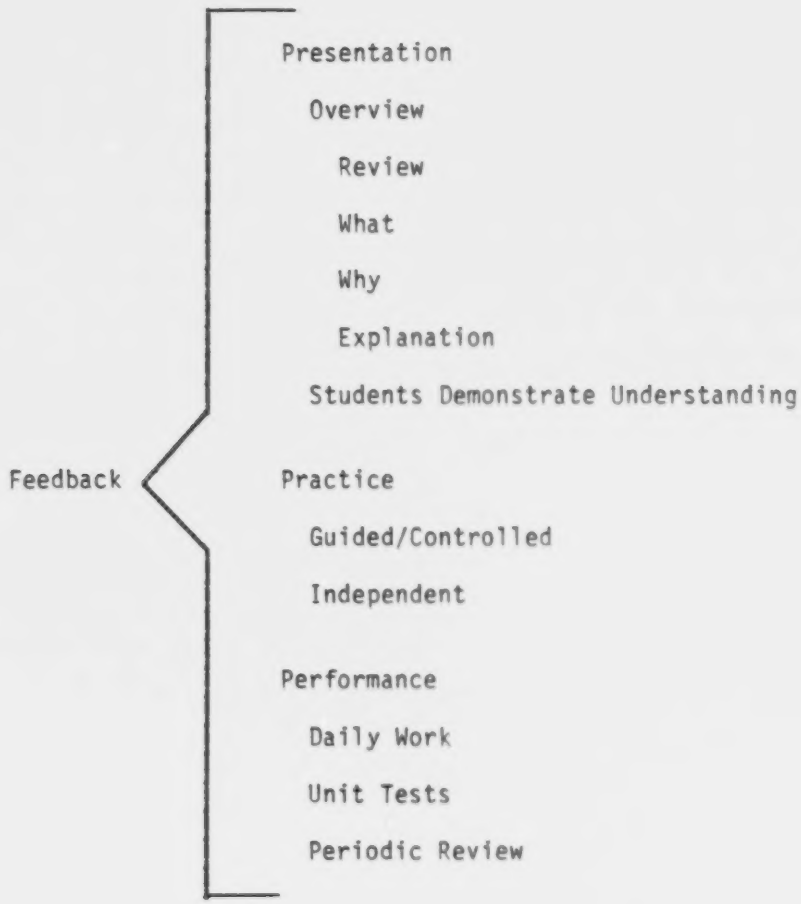


Figure 1. Dimensions of Classroom Effectiveness

three teacher behaviors (planning, management, and instruction) influence three student behaviors (involvement, content coverage, and success rate) which, in turn, influence student achievement (measured by standardized tests).

Student behaviors. The authors identify three critical student behaviors for improving learning outcomes. Involvement is the amount of time the student spends actively involved in learning a specific subject matter. It is comprised of both allocated time (how much time is provided by the teacher) and engaged time (how well students are engaged during the time provided). Coverage refers to the appropriateness of the content covered by the student, given the student's prior learning and the extent to which the content is assessed by district achievement tests. Success refers to the accuracy with which students can independently complete assignments. Considering these behaviors as critical aspects of student classroom behavior, Squires and his colleagues note that these variables form the construct of Academic Learning Time (ALT). ALT is defined as the "amount of time that students spend actively working on criterion-related content at a high rate of success" (pp. 14-15).

Teacher behaviors. Planning involves the teacher selecting objectives, diagnosing student characteristics, and selecting appropriate instructional and management strategies. Management refers to classroom control techniques, particularly those that are relevant for increasing students' academic involvement. Quality instruction is characterized by use of specific events and procedures (see Figure 2). According to this model, teachers influence student behavior and student achievement by planning, managing, and instructing in ways that keep students involved and successfully covering appropriate content and skills. The teacher's skill at making decisions for an individual student in



Note: From "Effective schools and classrooms: A research-based perspective" (p. 20) by D. A. Squires, W. G. Huitt, and J. K. Segars, 1983, Alexandria, VA: Association for Supervision and Curriculum Development.

Figure 2. Instructional Events Related to Quality Instruction

relation to the decisions needed for the whole class is implicated as a defining characteristic of quality of instruction in this model.

Cautionary remarks. In sum, the authors note that the six dimensions of classroom effectiveness have been studied independently, and to date few data are available on how a combination of those characteristics result in a change in student achievement. The model of classroom effectiveness represents an attempt to interrelate important classroom characteristics for increasing student achievement. It is consistent with the systems perspective advocated by Clauset and Gaynor (1982). Squires and his colleagues contend that their proposed dimensions of classroom effectiveness become the focus of school improvement efforts.

Impact of the School Effectiveness Literature

Research on effective schools has revived an optimistic attitude that schools can be organized to enhance instructional effectiveness. Due to its emphasis on equity, the goal of the effective schools movement is to enhance instructional effectiveness for all students.

Edmonds (1982) recently reviewed school district, university, and state agency school improvement programs based on school effectiveness research. He summarized by noting that "significant numbers of educational decision makers have concluded that the findings from research on effective schools are accurate and efficacious" (Edmonds, 1982, p. 11). Not everyone agrees with this view of the research, however. Several comprehensive critiques of methodologies used in effective schools research exist (Mackenzie, 1983; Purkey & Smith, 1983; Rowan, Bossert, & Dwyer, 1983). In general, they challenge the educational decision makers, concluding that the research is "weak in many respects, most notably in

its tendency to present narrow, simplistic recipes for school improvement derived from nonexperiemental data" (Purkey & Smith, 1983, p. 427).

Researchers primarily have defined school effectiveness as instructional effectiveness, measuring the latter with standardized achievement tests. Aggregating achievement data at the school level results in global characteristics of schools, but ignores the important variation in school organization and a variety of other school goals. With regard to research design, research has primarily used a "contrasted groups approach." In other words, the instructional effectiveness of schools has been measured, and "effective" and "ineffective" schools (most often inner-city or rural schools) have been selected and compared on organizational, instructional, and cultural variables. Subjective criteria in determining school success and possible errors in identifying effective schools due to uncontrolled student body characteristics (e.g., SES) repeatedly have been noted as weaknesses. While factors that co-vary with school effectiveness have been identified, little information about the causal relationship among variables has emerged. Most of the research attempting to associate school effects with student learning outcomes is correlational. Hence, it is impossible to determine whether active instructional leadership by the principal precedes or follows the developement of high expectations for student success or whether student achievement precedes or follows high expectations. Rather, a list of variables becomes the "recipe" for school implementation (most often in elementary schools).

Several researchers (D'Amico, 1982; Lezotte, 1982; Purkey & Smith, 1983) propose that descriptions of effective practices be used as a framework for school improvement planning, but not as an explicit recipe or prescription for

improving practices. This position is articulated by Clauset and Gaynor (1982) in their systems perspective on effective schools. Targets for intervention from a systems perspective include many variables. Among these variables are teacher expectation, teacher emphasis, appropriateness and intensity of instruction, engaged time, motivation, aptitude, behavior, classroom time spent on behavior, time for instruction in the classroom, teacher skills, classroom size, and others. The theory of Clauset and Gaynor reflects a currently held belief that there are no easy solutions for school and instructional improvement (Sizer, 1985). Despite this, "recipes" are given for improving instructional effectiveness in schools, and they most often focus on only one facet of the instructional system.

Similarly, the focus of the effective schools movement has been in regular classroom settings. In fact, findings from effective schools research have only recently been a topic of discussion within special education. The emphasis on only one kind of educational setting has occurred despite the fact that the characteristics of effective special education apply both to regular and special class settings. According to Brandl (1983), these characteristics include "an orderly, disciplined school environment; small classes; high expectations of the children; frequent evaluation and feedback; a large amount of student time spent 'on task'; and teachers who are knowledgeable, enthusiastic, and concerned, and who have a sense of efficacy in their work" (p. 229). The characteristics are comparable to those identified in school-based effectiveness projects (e.g., McCormack-Larkin, 1985; Miller et al., 1985).

In a recent article, Goodman (1985) argued for integrating the improvement efforts of regular and special education; she provided examples for the

implementation of six characteristics of school effectiveness within special education. The relationship between her list of effective school characteristics and current special education practices is shown in Table 6. In addition to these characteristics, expectations for achievement, efficient classroom management, active parent involvement, and smaller teacher-student ratio were identified by Goodman as defining characteristics of effective schools. Although no examples were provided by her for special education practices, increased parent involvement due to P.L. 94-142 stipulations and the smaller student-teacher ratios found in resource rooms serve as examples.

According to Squires and colleagues (1983), correlational studies over the past 20 years have provided information about student achievement and instruction in schools. We have learned that:

- Student achievement can be measured with validity and reliability in important areas.
- Teachers and schools make a difference in how well students succeed on standardized tests.
- Students who are involved in class generally succeed better than those who do not pay attention.
- Students who succeed on daily assignments and tests are more likely to have higher achievement on standardized tests.
- When teachers teach most of the content and skills covered by standardized tests, students are likely to have higher achievement scores.
- Curriculum packages, in and of themselves, will not result in higher achievement for students.
- Schools can produce exceptional student achievement, even when students come from low socioeconomic backgrounds.
- The principal exerts a tremendous influence toward refining and maintaining a school's social system that promotes achievement and discipline.
- Change in school practices happens over a number of years." (p. 3)

Table 6

Relationship of Effective School Characteristics
with Special Education Practices

School Effectiveness Characteristics	Special Education Practices
1. School leadership	Example: Impact on principal's role in integration, achievement, and success of special education students
2. Academic Engaged Time	Example: Use of behavior modification techniques to improve "on-task behavior"
3. Monitoring Student Performance	Example: Use of diagnostic-prescriptive methods at the preinstructional stage and during instruction
4. School Climate	Example: Emphasis on appropriate instructional techniques
5. Direct Instruction	Example: Use of sequenced structured materials, monitoring and feedback
6. Consistency of Curricular Objectives and Test Content	Example: Emphasis on instructional evaluation through use of criterion-referenced tests

Note: From "The effective schools movement and special education" by L. Goodman, 1985, Teaching Exceptional Children, 17, pp. 102-105.

After a major review of school effects on student achievement, Good and Brophy (1986) conclude that despite methodological problems in school effectiveness research, the fact that several studies reach similar conclusions about the characteristics of more and less successful schools lends credence to the claim that certain processes (i.e., climate and structural features of schools) are associated with school effects on achievement. While the importance of the classroom teacher in facilitating student learning outcomes is undisputed in the literature, the school effectiveness literature describes how instruction for students in a classroom, and subsequently student achievement, is affected by a positive "ethos," staff collaboration, and other school-wide instructional and organizational arrangements outside the immediate purview of the teacher.

Similarly, instruction for an individual student is a function of the context in which the instruction is delivered. The context in this case is comprised of multiple levels (classroom, school, school system) and influences. Therefore, the effectiveness of the instruction for an individual student may be influenced by numerous classroom factors, the administrative leadership of the principal in creating a positive school "ethos," the instructional policies and organizational arrangements of the school system, and degree of staff collaboration. This may be particularly true for mildly handicapped students' instruction. Effective schools research may be evidence for a merger of regular and special education (Stainback & Stainback, 1984), resulting in all students' instruction characterized by high expectations for student success regardless of instructional setting. Clearly, inter-staff collaboration of regular and special education teachers would be essential. Perhaps it is time to heed the advice of Goodman (1985).

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